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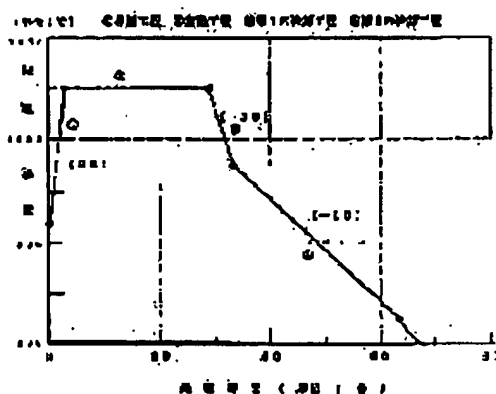
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(54) METHOD OF FORMING III NITRIDE SEMICONDUCTOR

(57)Abstract:

PROBLEM TO BE SOLVED: To form an active layer having an inhomogeneous crystal structure by heating an In-contg. III nitride crystal layer at a specified rate and heating temp. for specified time, and cooling it at a first and a second different rates.

SOLUTION: An In-contg. III nitride semiconductor crystal layer formed at a temp. T ($650^{\circ}\text{C} < T \leq 950^{\circ}\text{C}$) is heated at 30°C/min. or more from T to T' ($950^{\circ}\text{C} < T' \leq 1200^{\circ}\text{C}$). The total time for heating the crystal layer at T' is limited to 60 min. or less. This layer is then cooled at 20°C/min. or more from T' to 950°C in a first step and less than 20°C/min. from 950°C to 650°C in a second step. Limiting the cooling rate forms a slave phase in a main phase and accelerates inhomogenizing the crystal structure or the compsn. of the In-contg. III nitride active layer to form a III nitride semiconductor active layer.



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